

PROCEEDINGS OF OBSERVATORIES.

The following Reports of the proceedings of Observatories during the past year have been received by the Council from the Directors of the several Observatories.

Royal Observatory, Greenwich.

Observations of the Sun, Moon, and planets with the Transit Circle, and of the Moon with the Altazimuth, have been made regularly as in past years. Considerable progress has been made in the observation of stars in the working list, and the Annual Catalogue for 1878 is larger than usual, containing about 1,300 stars.

A considerable number of observations of phenomena of *Jupiter's* satellites have been accumulated during the past year, and occultations of stars by the Moon have been observed whenever the state of the sky permitted.

The printing of the *Nine-Year Catalogue of 2,263 Stars* was completed last summer and the Catalogue is ready for distribution; but before issuing it to the public, it appeared desirable to compare it in N.P.D. with the two last preceding Catalogues. In the Nine-Year Catalogue a change has been made in three of the elements of reduction, viz. the R-D correction, the mean refractions, and the co-latitude, and the comparison with the two Seven-Year Catalogues shows large systematic differences depending mainly on the diminution of refractions and consequent alteration of co-latitude, introduced at the beginning of 1868. The discussion is not yet finished; but the observations of the Sun at the solstices, and of circumpolar stars, and the comparison of the Cape and Melbourne Catalogues with the First Seven-Year Catalogue made by Mr. Downing, seem to show that the old refractions are sensibly correct and that the N.P.D's. of the Nine-Year Catalogue will require systematic correction. It is proposed to insert this discussion as an appendix to the Introduction, and the issue of the Catalogue has consequently been delayed for a short time.

The spectroscopic work has been interrupted since last May, in order that the reductions of the measures of photographs of the Sun might be pushed forward. The chromosphere was examined on 34 days, on 15 of which no prominences were seen; the search, however, was made under somewhat unfavourable circumstances on 10 of these days. The solar spectrum in the neighbourhood of G has been repeatedly examined

with reference to the existence of bright lines in that region, and on May 31 several photographs of this part of the spectrum were taken. The results have been communicated to the Society. The spectroscopic determination of star motions in the line of sight has been continued, and measures of the displacement of the lines of hydrogen or magnesium in the spectra of 34 stars have been made; 11 of these had not been previously examined. All of these observations were made with the Half-prism Spectroscope. The spectrum of the eclipsed Moon was examined with the Single-prism Spectroscope on 1878, August 12, and observations of the "rainband" in the sky spectrum were made daily up to June last with a small Half-prism Spectroscope.

During the year 1878 photographs of the Sun were taken on 146 days; on only 29 of these were any spots visible, and on only 44 days groups of faculæ. There has been a marked diminution in the numbers of spots and faculæ as compared with the previous year. The arrears of photographic reductions, which had accumulated since 1873 in consequence of the delay in the construction of the Position Micrometer have now been cleared off. The position angles and distances of spots and faculæ from the Sun's centre, as well as the areas, have been measured in duplicate up to the present time, and the heliographic latitudes and longitudes, and areas in millionths of the Sun's visible hemisphere, have been deduced from them. The copy for press has been prepared, and the complete results for the year 1876 have been printed in the volume of *Greenwich Observations* about to be issued, leaving the results for the years 1874, 1875, 1877, and 1878 to be included in the next volume. The areas as distinct from positions had been already printed for 1874 and 1875 in the corresponding volumes of *Greenwich Observations*.

The serious and prolonged illness of Mr. Lynn has caused a severe pressure on the Observatory during the last ten months, and it has been found necessary to have frequent recourse to the assistance of computers for the ordinary observations. The reductions, however, have not been suffered to fall behind, and they are now in a very forward state. The unusually cloudy weather of the last two months (succeeding a remarkably fine autumn) has materially relieved the pressure on the computing staff. All the current reductions are brought up to the present time, and the Star Ledgers of R.A. and N.P.D. for 1878 are formed.

Astronomers are well aware of the extent and accuracy of the meridional observations in general and of the meridional and extrameridional observations of the Moon in particular, most regularly followed up at the Royal Observatory, and printed in detail in its *Observations*. But they are scarcely aware that the same volumes contain a great mass of separate essays on various trains of observation and other

subjects relating to astronomy, which it is hoped are not without value. The Astronomer Royal has commenced the formation of an Index to these essays, which may bring them more to the notice of the public, and may render them at once accessible to the astronomer's quest.

The Radcliffe Observatory, Oxford.

In May last this Observatory was deprived by death of the services of its eminent and distinguished Director, the Rev. Robert Main.

The Trustees of the institution shortly afterwards placed it under my* temporary control, pending their appointment of a successor to Mr. Main. By a somewhat recent statute of the University, the Savilian Professor of Astronomy is no longer permitted to hold the directorship of the Radcliffe Observatory.

By a remarkable concurrence of events, the second assistant of the Observatory died very soon after his respected chief, and at the same time the first assistant, Mr. Lucas, on account of the infirm state of his health, retired from his office with a handsome pension accorded to him by the Trustees in acknowledgment of his long services. There remained, therefore, on the staff of the Observatory one assistant and one computer only. These, however, have been temporarily supplemented by assistance derived from the resources of the University Observatory.

Mr. Stone, the Director of the Royal Observatory at the Cape of Good Hope, has been appointed to the Radcliffe Observatory, and is expected to arrive in Oxford early in July of the present year. The Radcliffe Trustees, with great liberality and consideration, have allowed Mr. Stone to remain in his present post at the Cape until he shall have satisfactorily completed the great work of a Catalogue of Southern Stars, which for some years past has occupied his attention.

At the suggestion of the Trustees I submitted to the Astronomer Royal and to Professor Adams propositions for the reorganisation of the Observatory, and I am gratified at finding these propositions have met with the approval of these eminently practical authorities. Mr. Stone also has expressed his acquiescence in the plans suggested.

Exactly the same sort of work, and on the same lines as that adopted by Mr. Main, has been carried on at the Observatory so far as the more limited staff has permitted; my chief endeavour being to leave Mr. Stone unfettered in the making of his own arrangements, and in the establishing of his own traditions, and as unincumbered as possible by the accumulation of arrears.

* The above report is written by Professor Pritchard.

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The state of the Carrington Transit Circle has occupied much of my anxious attention. From its first erection in Oxford it has been affected with an uncertainty in the determination of the nadir to a far more serious extent than is usual and unavoidable with first-class astronomical instruments. Notwithstanding numerous experiments and devices, I have been unable to ascertain the cause or causes of the discrepancy in question. The instrument had been used for a considerable time by Mr. Carrington at Red Hill. It was transferred from thence to Oxford, and erected in its present position, without the assistance of a professional instrument maker, and it is quite possible that it may have been slightly injured during the removal, or that the brass plates which support the pivots of the instrument may have been insecurely attached to the piers. No doubt it will receive Mr. Stone's earliest attention, and if found to be either too small for present requirements or otherwise inherently defective, the Trustees will probably supply a new and superior instrument.

Oxford University Observatory.

Since the date of the last annual report of this Observatory, the delegates of the Clarendon Press have printed and circulated the first fasciculus of the astronomical observations made here under my direction. I take this opportunity of thanking the many eminent astronomers, both at home and abroad, for the hearty sympathy and encouragement which they have accorded to this first contribution made to the extension of astronomical science in this new institution of the University of Oxford.

In accordance with a remark made in the last annual report, the observation of double stars has been exclusively confined to objects whose well pronounced relative motions and other circumstances present the promise of an accurate determination of their elliptical orbits. A comparison of the observed motions of the components of ξ *Ursæ Majoris*, γ *Ophiuchi*, μ^2 *Boötis* with those derived from the orbits computed in this Observatory turns out to be highly satisfactory, and more particularly so in the case of ξ *Ursæ*, where the rapid change of positional angle affords a rapid and secure test of the accuracy of the theoretical work.

In the course of the preceding and present winters two sets of measures of 40 of the stars in the *Pleiades* have been completed, and their remeasurements will be continued so long as the stars remain visible during the present apparition of the group. They are with the *duplex micrometer* attached to Mr. Grubb's Refractor. When these observations have been reduced they will be compared with Bessel's celebrated measures of the same stars made with the Königsberg Heliometer in 1838.

A few observations of Tempel's periodical comet have been secured, notwithstanding its low altitude and the brightness of the sky at the time of its apparition. No other observations of this periodical comet appear to have been published in England.

Lunar photography has been prosecuted with the same regularity as heretofore. Mr. De La Rue's magnificent measuring engine arrived at the Observatory in the course of the spring; no time was lost in ascertaining its capabilities, and those of the lunar photographs to the purposes of delicate and accurate measurements, and their applicability to the practical determination of the lunar physical libration. The preliminary examination has occupied much time; but at the present a fair amount of progress has been made in the determination of the selenographical coordinates of Triesuecker (B) and Ptolemy (A); these being the two points selected for the prosecution of this laborious and intricate investigation. In the course of this preliminary work, it seemed that an excellent subsidiary test of the general accuracy of the instrument and of the photographs might be afforded by ascertaining how far both of them were applicable to the determination of the height of lunar formations. The result has been highly satisfactory. The peculiarity of the measuring instrument, and the quiescent nature of a photograph, enables us to dispense with the troublesome and inaccurate reference to the Moon's terminator, and even the lunar cusps, at all times ill defined. The success of this presumably new application of celestial photography affords some substantial hope of still further usefulness of the process.

The intelligent and diligent attention of the two assistants, Mr. Plummer and Mr. Jenkins, to their varied duties in this Observatory demands acknowledgment.

The sub-aerial observatory, completed on the roof of the new lecture room, attracts the curiosity of many of the University students. An instrument for measuring and recording the daily amount of sunshine is placed among the other instruments, and the results are published weekly in an Oxford journal. It excites considerable interest; and if similar records were kept in various districts throughout the country, some important information might be reasonably expected.

Cambridge Observatory, 1878.

The work carried on during this year continues to be of the same character as that of several previous years. A large proportion of the zone stars have now been observed three times and upwards, so that in certain regions it has become requisite to increase the working breadth of the zone, and even with this

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advantage the progress of the work is occasionally somewhat slow; the weather, too, has been unfavourable. But, notwithstanding these drawbacks, 3,065 observations of zone stars have been made during the year, and 671 observations of standard stars for clock and instrumental correction, with the necessary observations for collimation and level errors and for nadir points.

The reductions of standard stars are finished up to the end of 1877, both for Right Ascension and North Polar Distance: the reductions for 1878 are in progress. The calculation of the constants used in the reduction of zone stars is completed for 1875 and is well advanced for 1876. The mean Right Ascensions and North Polar Distances of zone stars are computed to the end of 1874, the true Right Ascensions and North Polar Distances to the end of 1875. All the observations up to the present time are entered in the reduction books, and the means of microscopes and wires taken. The Declination Micrometer has been carefully tested, by bisecting the wires in the South Collimating Telescope, and it has been shown conclusively that it is a matter of indifference whether a star is bisected by moving the wires towards the micrometer head or in the opposite direction.

It had been found that the nadir point was sensibly affected by the unequal expansion of the telescope tube caused by heat from the observer's body; it has been judged necessary, therefore, to protect the tube by a quilted calico covering from sudden changes of temperature due to this cause.

It is thought probable that the discrepancies between the results of direct and reflected observations, known as the "Discordances of Zenith Points," are mainly occasioned by these unequal expansions of the telescope tube, but that they are also in part due to inequality in the refractions suffered by the direct and reflected rays in their respective passages from the external air to the observer's eye.

In order to throw light on the latter point several good standard thermometers have been procured and experiments with them are in progress for comparing from time to time the temperatures in different parts of the transit room with that of the external air.

Dunsink.

The South Equatoreal has been employed in observations of annual parallax. A series of differences of declination between 61 *Cygni* and a neighbouring star was completed and shows a parallax of $0''.4654$. A set of measures of the distance and position from Groombridge 1618 to an adjacent star will be completed in March, and systematic observations of two other stars have been commenced. Measurements of a large number of other stars have

been made, with the view of selecting those which will be suitable for regular parallax observations.

Mr. Burton having resigned on account of ill-health, Mr. Dreyer took charge of the Meridian Circle at the end of last August.

The observations of red stars, which, for various reasons, had not made much progress for some time, form this winter the only object of observation, and will, it is hoped, be finished in the coming summer. When the resulting positions of red stars have been brought out in the course of next winter in Part IV. of the *Dunsink Observations*, it is intended to devote the Meridian Circle to a longer series of observations of stars with large proper motion.

Royal Observatory, Edinburgh.

At the Royal Observatory, Edinburgh, the work has consisted nearly as usual in time observations, daily time signals by ball and gun, and control of public clocks; also in the extensive meteorological computations required by the Registrar-General for Scotland to illustrate the climates of fifty-five observing stations spread over the whole of North Britain.

The Assistant Astronomers, Mr. Alexander Wallace, M.A., and Mr. Thomas Heath, B.A., have further done good work in perfecting the MS. of additional portions of the Star Catalogue to what was contained in vol. xiv. of the *Edinburgh Astronomical Observations*. And the Astronomer has succeeded in observing carefully the whole solar spectrum, by eye and glass transmission, to an extent of 2,200 micrometer measured lines, or about 1,000 more than what are contained in Angstrom's excellent *Normal Solar Spectrum Map*. Most of these additional lines are far too faint to be of much importance; but an occasional strong case of anomaly has been found which must signify either an accidental error in Angstrom or a variation in the quality of solar radiation with time. In preparation for the possibility of something of the latter kind eventuating, this Edinburgh Solar Spectrum has been entitled as "for the epoch 1878."

The Edinburgh Royal Observatory hopes to have the power of printing its observations restored to it before long, as well as that something may at last be done for strengthening the establishment in the directions pointed out by both the Commission of Enquiry two years ago, and the many persevering annual reports of the Edinburgh, Government appointed, Board of Visitors.

Kew Observatory.

The astronomical work of this Observatory has been continued during the past year to the continued measurements of the Sun-pictures taken during the years 1862-71, which has been carried on at Mr. De la Rue's expense and under his direction.

On account of the large number of spots which appeared on the Sun's disk during the years 1870 and 1871, it has not been found possible to complete the whole series of pictures, but measurements have been made up to the end of February 1872, and it is contemplated that another month will suffice for finishing this branch of the work, as the Kew series ends on April 9, 1872.

The reduction of the measurements to heliocentric elements has been continued by Mr. Marth for Mr. De la Rue.

The eye observations of the Sun after the method of Heinrich Schwabe have been made daily, when possible, in order for the present to maintain the continuity of the Kew record of Sun-spots.

The question of observing solar radiation having been referred by the Meteorological Council to the Kew Committee, a sub-committee has been appointed to take the whole subject into consideration.

The Campbell Sundial continues in action, and the improved form of the instrument, giving a separate record for every day of the duration of sunshine, has been regularly worked throughout the year and its curves tabulated.

The magnetical and meteorological work, to which the attention of the Observatory is chiefly directed, has been prosecuted continuously, and the Verification Department has been fully occupied the whole year.

Liverpool Observatory, Bidston, Birkenhead.

The general work at this Observatory during the past twelve months has differed but little from that of preceding years.

A large amount of information is now being collected with regard to the performance of chronometers at sea.

Probably but few persons are aware of the degree of accuracy which may be attained in the determination of the longitude of a ship at sea by the application of corrections due to change of temperature to the rates of chronometers. For the last sixty chronometers returned to the Observatory, the average length of voyage is 110 days, and for the best thirty of them, or half of these, the mean error—that is, the difference between the error of

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the instrument on Greenwich mean time as found by calculation, by using a variable rate dependent on the temperatures to which the instrument was exposed during the voyage, and the absolute error on Greenwich mean time as found by comparing the instrument with the normal clock at this Observatory—is 9·3 seconds, or under two and a half geographical miles on the Equator after a voyage of nearly four months.

Temple Observatory, Rugby.

The principal work of the Observatory during the year 1878 has been the measurement of position and distance of 65 double stars, a number somewhat less than that of previous years, owing in a great measure to the fact that the attendance of members of the school and the time given to them has been very considerably increased since the Observatory has been built on the present site.

The measurements are chiefly of stars contained in a list made by Mr. Wilson of well ascertained binaries.

Mr. S. has given further attention to the measurements of the motions of recession or approach of stars with the large spectro-scope on the reflector, and has taken 23 sets of measures, but the available evenings have been few.

The educational use of the Observatory has during the past year largely increased, 352 names appearing in the note book. We are sorry to have to record the fact of Mr. Wilson's withdrawal from the direction of this Observatory, in consequence of his appointment to the head mastership of Clifton College.

The Temple Observatory will now be under the direction of Mr. Seabroke.

Stonyhurst Observatory.

The astronomical work in this Observatory was considerably interfered with by the absence of the object-glass of the large Equatoreal during the first six months. One of the surfaces of this glass has been reground by Mr. J. Simms, and the definition has thus been considerably improved.

The eclipses of *Jupiter's* satellites were observed with a 9-inch Cassegrain during the polishing of the lens of the Equatoreal; and this Cassegrain and a 4-inch achromatic by Jones were in readiness for the transit of *Mercury* on May 6, had the state of the sky been favourable.

The improvement of the Refractor has caused the double-star work to be undertaken more perseveringly than formerly, and a large spectroscope is now in course of construction for the Observatory, which will be employed principally in daily work on the Sun.

The Director of the Manila Observatory has spent some time at Stonyhurst in the course of the year, and a first-class theodolite and standard astronomical clock are shortly to be sent to his distant station.

A chronometer and dip circle have also been lately tested at this Observatory, previously to being taken out to the South of Central Africa by some missionaries who sailed in January from Southampton.

Mr. Barclay's Observatory.

The principal feature of the past year's work has been the publishing of the fourth volume of the *Leyton Astronomical Observations*. As stated in a previous Report, it is considered best to publish frequently, even if the number of observations be comparatively small, as an accumulation of unreduced observations, which is apt to become overwhelming, is prevented, and observations which may perhaps be useful to others are immediately available.

The instruments remain as before described. The whole of the Equatoreal has this year been dismounted for the purpose of cleaning the various bearings. It has hitherto been found impossible to obtain an oil that does not thicken and become as tenacious as glue.

Colonel Cooper's Observatory, Markree.

During the past year double stars and planets have been systematically observed at this Observatory with a number of different micrometers. With the Munich spider-lines micrometer both angles and distances were measured directly, and the same apparatus was used for oblique transits. With the prismatic double-image micrometer I could only measure distances. With the square-bar micrometer I observed differences of R.A. and Decl.

At present I observe systematically all double stars of between 65° and 85° Decl. north (with the exception of such objects as are positively known to be motionless from previous

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investigations). If the observation agrees with the earlier results, I do not examine the object again ; but if I find a difference, I continue the measures in order to form a reliable epoch.

The severe frost which occurred at the end of last year interfered a good deal with the working of the large telescope. A couple of nights the tube was so hard to move in R.A. that it took two strong men to alter it, and subsequently the observations had to be given up, the telescope being all covered over with snow and frozen, as was also the yard where it is placed.

Mr. Edward Crossley's Observatory, Bermerside, Halifax.

No important change in the work of this Observatory has taken place since the date of the last Report. Measures of double stars have been made, phenomena of *Jupiter's* satellites observed, and a new micrometer, by Simms, carefully tested ; but the principal work of the Observatory has been the compilation of notes on double stars and the collection of measures for the purpose of forming a catalogue of binaries. The new driving clock, by Mr. Grubb, was fixed in July, and has been found both powerful and effective.

Mr. Huggins' Observatory.

During the past year the work of obtaining photographs of the spectra of stars has been pursued whenever the weather has been sufficiently favourable. Considerable progress has been made ; but for this work only the finest nights are available. On the occasion of the transit of *Mercury* arrangements were made to obtain a photograph of the spectrum of *Mercury* superposed on the solar spectrum, chiefly to observe if any modifications of the solar spectrum due to an atmosphere were to be found near the limbs of the planet. Unfortunately, the weather was not sufficiently favourable at the time of the transit.

Observatory, Birr Castle.

During the earlier part of the year 1878 the observations were carried on as usual at the Observatory of Birr Castle, but work was not resumed at the telescopes after the short nights of the summer solstice. My assistant, Mr. J. Dreyer, left for

Dunsink towards the end of August, the preparation of Part II. of *Observations of Nebulae* having been completed for sending into the Royal Dublin Society, and the observations for Part III., which completes the work, having been carried on as long as was deemed necessary before closing the series.

As I was leaving home in July last, with little hope of returning to reside there for a year or more, I was unable to take steps for engaging in any new line of work, and except for taking the 9 A.M. and 9 P.M. meteorological readings, the Observatory remains closed for the present.

The 12.45 P.M. G.M.T. "Synchronous" meteorological observations have been discontinued.

Colonel Tomline's Observatory, Orwell Park.

The past year having been on the whole unfavourable to equatoreal observation, the opportunity has been taken to complete the reduction of arrears of all kinds. The cometary observations of 1877 have been fully reduced and the results have been sent to the Editor of the *Astronomische Nachrichten* for publication in that journal.

The longitude of the Observatory has been determined by the method of the Moon and culminators, and the result, $4^m 57^s.75$ E., exceeds by nearly two seconds that inferred from the Ordnance Survey. This result is scarcely definitive, as other observations exist for which the corresponding ones at Greenwich are not yet published; but, depending as it does on an equal number of observations (11) of either limb of the Moon, it is not anticipated that any sensible alteration will require to be made.

A great number of transit observations of stars have likewise been reduced, which are expected to yield some interesting results bearing on proper motion.

Tempel's comet has been looked for on several occasions, but, owing to persistent cloud and haziness near the horizon, has not been seen. The like ill success in the case of Swift's comet is explained by the unfortunate misinterpretation of the telegram announcing its discovery.

The transit of *Mercury* on May 6 was very fairly observed, and afforded gratifying proof of the excellence of definition of the object glass.

It was found necessary in September to dismount the telescope in consequence of some particles of rust having found their way into the bearing of the declination axis, almost entirely preventing the movement. The rust was removed by Mr. Simms, and since that time the working of the instrument has been quite satisfactory.

Royal Observatory, Cape of Good Hope.

The reobservation of the stars in Lacaille's zones is finished. All the reductions are completed, and 9,000 stars are accurately reduced to epoch, and have their precessions and secular variations computed and examined. The rest of the observations are very approximately reduced to epoch, and the computation of the precessions and secular variations is being pressed forward as rapidly as possible. We are now only observing stars to fill up a few *lacunæ* which have been detected on projecting our places on a large scale chart for that purpose.

The Catalogue will probably be completely finished before Mr. Stone leaves the Cape in the middle of June, and it will contain about 13,000 stars. Mr. Stone intends to bring the work home to be printed, as the printing at the Cape would take two years.

The volume for 1876 has long been finished and is now nearly printed. The printing has been delayed to pass through the press the Catalogue for 1860, which will be bound up with the 1876 volume as an appendix.

Melbourne Observatory.

During the past year the meridian observation at this Observatory has been somewhat relaxed in order to give more time for the reduction of the zone observations between the parallels 150° and 160° N.P.D., and it has therefore been chiefly confined to the routine observations of fundamental clock and circumpolar stars. In November, however, a series of observations was made for the determination of the R.A. of certain stars selected by Mr. Gill to enable him to investigate certain systematic errors in the Right Ascensions of the *Mars* comparison stars as determined at various Observatories.

The Great Telescope continues in good working order, and has been devoted steadily to the revision of Sir John Herschel's figured nebulae. Nos. 4223 and 1561 of the General Catalogue, widely separated from each other, and described by Herschel as prominent objects, cannot now be found. The nebula around η *Argûs* was carefully compared with the drawings of March 1876; the only change which has been clearly established since that date is a break or separation in one of the branches on the preceding side. Among other work the Trifid Nebula has occupied some attention, and the drawing, which, however, is not yet quite complete in all its details, agrees fairly with Mr. Lassell's drawing of 1862, the three principal stars near the centre being unmistakably involved in the nebula.

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The drawings of all the nebulae made at the Great Telescope, although lithographed, have not yet been published, owing to unforeseen delays in the Government printing departments.

The 8-inch Refractor has been employed partly in planetary observation, but principally on southern double stars, in continuation of a revision of Sir John Herschel's list.

Sun-pictures have been obtained every day with the photo-heliograph, and the absence of sun-spots during the year has been very remarkable.

The usual meteorological and magnetical work has been carried on uninterruptedly.

The transit of *Mercury*, which took place on May 7, had passed through its earlier phases before the Sun rose above the Melbourne horizon; the latter phases, however, were all observed and the results have appeared in the *Astronomical Notices*.

The only astronomical publication issued during the year was a pamphlet containing the observations of *Mars* and comparison stars at the opposition of 1877.

The meteorological publications issued are the *Monthly Records of Meteorology and Terrestrial Magnetism* and the *Meteorological Results for the year 1876*.

The establishment and instrumental appliances are in an excellent and effective condition; it is proposed, however, to replace the present Transit Circle, which has a telescope of 5 inches aperture, with one similar to that at Cambridge (England), which has an objective of 8 inches diameter, and the Colonial Government has already testified its readiness to furnish the requisite funds.